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Actual Claims Language	Crossroads' Proposed Construction	Crossroads' Evidence	Defendants' Proposed Construction	Defendants' Evidence
		<p>involving a translation from a high level file system command to a native low level block protocol request.")</p> <p>April 28, 2011 2d Supp. Decl. of John Levy, Ph.D., ¶7 (CIFS, NFS and FTP are network protocols).</p> <p>March 7, 2011 Decl. of Brian Berg, ¶37 (Defendants' expert uses term "network protocol" broadly such that it would include Fibre Channel).</p> <p>April 28, 2011 2d Supp. Decl. of John Levy, Ph.D., ¶3 (a workstation gets "access to the local storage device through native low level block protocols").</p> <p>Hr'g Tr. at 129:7-13, March 8, 2011 (Defendants agreed to remove "without involving . . . Ethernet networks, Ethernet protocols, TCP/IP" from their proposed construction). March 7,</p>		<p>particularly time consuming.")</p> <p>Levy Decl. ¶ 33</p> <p>Pl. Br. 13-14 ("The '035 Patent introduces and defines the term NLLBP from the perspective of a workstation accessing local storage; specifically, an NLLBP is what is used by a workstation to access local storage.")</p> <p>Pl. Br. 14 ("Therefore, just as the workstation sends an NLLBP request to access its local storage, using a storage router in the present invention, the workstation will similarly send an NLLBP request to the storage router.")</p> <p>Hrg. Tr. 244:5-14 ("Well, sure. It has the same problem at the workstation...")</p> <p>Hrg. Tr. 225:5-9.</p> <p>WITHOUT</p>

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		<p>2011 Supp. Decl. of John Levy, Ph.D., ¶13 (Ethernet and TCP/IP protocols are concerned only with delivery of messages).</p> <p>February 22, 2011 Decl. of John Levy, Ph.D., ¶36 (NLLBP "used" by the storage router to allow access is the NLLBP sent to it from the device; this NLLBP is the NLLBP appropriate for the virtual local storage, not the NLLBP of the storage device storing the data).</p> <p>Dictionary of Computer and Internet Terms 311 (6th Ed. 1996), Fore Decl. ISO Pl.'s Cl. Const. Br., Ex. S (defining "native" as "1. designed for a specific hardware or software environment (rather than for compatibility with something else)").</p> <p>Stip. Defs. of Cl. Terms, Fore Decl. ISO Pl.'s Post-Hr'g Cl. Const. Br., Ex. I (parties agree that</p>	<p>INVOLVING NETWORK PROTOCOLS</p> <p><u>Intrinsic Evidence</u></p> <p>Second Reexam Reply at 9-10 ("In typical prior art systems...to overcome the inability of a SCSI-to-SCSI system to provide remote storage...workstations were connected to a network server using a distance capable network transport medium and a network protocol such as Ethernet. A problem with this prior art solution was that the network server creates a bottleneck which slows down remote access because, at least in part, the computer or workstation needs to create something called a 'network protocol' to send the data over the distance-capable transport medium.") (citing 1:47-54) (emphasis added)</p>	<p>Special Master's Construction</p>

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		<p>"virtual local storage" is "storage space, in a storage device that is remotely connected to an initiator device to be within or locally connected to the initiator device").</p> <p>April 28, 2011 2d Supp. Decl. of John Levy, Ph.D., ¶6 (under Defendants' construction, a protocol used for communication over "Fibre Channel based networks" would be a network protocol).</p>		<p>Second Reexam Reply at 24 ("one of ordinary skill in the art would have understood that access to remote storage via Ethernet required the use of a higher level network protocol.")</p> <p>Second Reexam Reply at 24 ("Ethernet networks required the use of high-level protocols to transmit information between a workstation and a network server....The problem with this type of system is exactly the problem that the '035 Patent described in the Background of the Invention and was designed to overcome.")</p> <p>Second Reexam Reply at 35 ("the Ethernet based system of Spring relies on higher level protocols to achieve remote storage")</p> <p>Def. Ex. 8, NIIRC ("TCP/IP, e.g., used in Ethernet communications...is not considered to be a</p>

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				NLLBP") WITHOUT INVOLVING NETWORK PROTOCOLS — <u>Extrinsic Evidence</u> Berg. Decl. ¶¶ 46-48 Berg. App. H at 80-81 WITHOUT INVOLVING FILE SYSTEM COMMANDS — <u>Intrinsic Evidence</u> First Reexam Reply at 10 ("the storage router is not required to translate some high level command from the workstation (e.g., a file system command, or function call with arguments) into a low level SCSI command") First Reexam Reply at 11 (stating that the Petal reference uses "file system commands" and	

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				<p>therefore "does not allow the client (i.e., workstation) to access the storage devices using an NLLBP")</p> <p>WITHOUT INVOLVING TRANSLATION FROM ONE PROTOCOL TO ANOTHER – Intrinsic Evidence</p> <p>First Reexam Reply at 10-11 ("Therefore, Petal does not disclose, teach or suggest a system for 'allowing access...using native low level, block protocols as recited' in the claims.")</p> <p>First Reexam Reply at 10 ("there is no translation of the commands from a higher level protocol to a low level protocol. In other words, the storage router is not required to translate some high level command from the workstation (e.g., a file system command, or</p>

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and a supervisor unit coupled to the first controller, the second controller and the buffer, the supervisor unit operable to map between devices connected to the first transport medium and the storage devices, to implement access controls for storage	<p>Native low level block protocol ("NLLBP"):</p> <p>Native: "Designed for use with a specific type of storage device."</p> <p>Block Protocol: "A set of rules or standards for exchanging information"</p>	<p>Native low level block protocol:</p> <p>Intrinsic: Abstract, Col. 1, ll. 44, Col. 2, ll. 13-14, 26; Col. 3, ll. 17, 22-23, 53, 63; Col. 4, ll. 4-5, 25; Col. 5, l. 3; Claim 1, Col. 9, ll. 29-30; Col. 10, l. 10; Col. 10, ll. 48-</p>	<p>Native low level block protocol:</p> <p><i>Does not need to be separately construed; alternatively, may be construed with reference to individual terms as follows:</i></p> <p>Native: Designed for use with a</p>	<p>function call with arguments) into a low level SCSI command."</p> <p>First Reexam Reply at 22 ("Thus, the devices of Claim 1 connected to the first data transport protocol can access the storage devices using commands that do not require translation from a high level protocol to a low-level protocol.")</p> <p>WITHOUT INVOLVING TRANSLATION FROM ONE PROTOCOL TO ANOTHER – Extrinsic Evidence</p> <p>Berg Decl. ¶¶ 30-34</p>
				<p>"A set of rules or standards that enable computers to exchange information and do not involve the overhead of high level protocols and file systems typically required by network servers."</p>

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space on the storage devices and to process data in the buffer to interface between the first controller and the second controller to allow access from devices connected to the first transport medium to the storage devices using native low level, block protocols .	<p>with a block-oriented storage device."</p> <p>Low Level . . . Protocol:</p> <p>"A set of rules or standards that enable computers to exchange information without involving high level file system protocols."</p> <p>Or, in the alternative:</p> <p>Native Low Level Block Protocol:</p> <p>"A set of rules or standards designed for exchanging information with a block-oriented storage device without involving high level file system protocols."</p>	<p>49 (specification consistently uses "NLLBP" as a single term).</p> <p>Fig. 1; Col. 3, ll. 20-23 (network server shown in Fig. 1 communicates with storage devices via NLLBPs even though the SCSI commands are sent by a network server).</p> <p>Fig. 1, Col. 1, ll. 49-54; Col. 3, ll. 17-23 (the "storage router" of the invention is contrasted with a "network server" that allowed access to storage devices by translating high level file system commands of the "network protocol" into low level requests (i.e., NLLBP) and sending the NLLBP to the physical storage devices).</p> <p>Claim 1, Col. 9, ll. 13-30 (storage router "allow[s] access from devices connected to the first transport medium to the storage devices using native low level,</p>	<p>specific type of storage device.</p> <p>Low-level protocol:</p> <p>A set of rules or standards that enable computers to exchange information without involving network servers, Ethernet networks, or higher-level protocols such as TCP/IP, Ethernet protocols, network protocols or file system protocols.</p> <p>Block protocol:</p> <p>A set of rules or standards for exchanging information with a block-oriented storage device</p>	<p>1:52-54 ("that the server must translate into low level requests to the storage device")</p> <p>2:29-31 (each "workstation access[es] its virtual local storage as if it work [sic: were] locally connected")</p> <p>NATIVE – Extrinsic Evidence</p> <p>Berg. Decl. ¶ 44-45</p> <p>Def. Ex. 17, Webster's <i>New World Dictionary of Computer Terms</i> (5th ed. 1994) (a native compiler is "a compiler that produces code usable only for a particular computer;" native language is "a computer language peculiar to the machines of one manufacturer");</p> <p>Def. Ex. 21, <i>Dictionary.com Unabridged</i> (based on <i>Random House Dictionary 2010</i>), accessed from http://dictionary.reference.com</p>

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		<p>block protocols" (emphasis added); the storage router, specifically, the supervisor unit within the storage router, "uses" the NLLBP to permit or enable access).</p> <p>Abstract; Col. 2, ll. 12-15, 17-20, 24-27; Col. 3, ll. 59-63; Col. 3, ll. 51-53; Col. 4, ll. 2-6; Col. 5, ll. 1-5; Col. 9, ll. 28-31; Col. 10, ll. 9-11 (specification discloses that NLLBPs are used by, and at, the storage router to allow access).</p> <p>Col. 6, ll. 33-41, 46-56 (specification describes two embodiments wherein "devices" making the storage access request are servers).</p> <p>April 6, 2005 Reply to Office Action at 10-11, Fore Decl. ISO</p> <p>Crossroads' Post-Hr'g Cl. Const. Br., Ex. E; July 22, 2005 Reply to Office Action at 24-27, Fore Decl. ISO</p> <p>Crossroads' Post-Hr'g</p>		<p>ce.com on 2/12/2011.</p> <p>Def. Ex. 22, <i>IEEE Standard Glossary of Computer Networking Terminology</i> (1995) at 32. (a protocol converter is "a dedicated device that translates the protocol native to an end-user device into a different protocol").</p> <p>Levy Decl. ¶ 36 (alleged invention "presents virtual local storage to the workstation that looks just like local storage to the workstation")</p> <p>Levy Supp. Decl. ¶ 23 ("Consequently, the host system will access the virtual local storage using the NLLBP appropriate for storage that the host system sees as its local storage.")</p> <p>LOW LEVEL PROTOCOL: See "Allowing access...using native low level block protocol", <i>supra</i>.</p>	

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		<p>Cl. Const. Br., Ex. F (Crossroads distinguished Petal, Spring and Oeda as having a server that provided controlled access to storage was required to translate high level file system commands into low level commands in order to send the NLLBP to the storage devices).</p> <p>April 6, 2005 Reply to Office Action at 8-11, 19, 22-23, Fore Decl. ISO Crossroads' Post-Hr'g Cl. Const. Br., Ex. E; July 22, 2005 Reply to Office Action at 11-17, 21-28, Fore Decl. ISO Crossroads' Post-Hr'g Cl. Const. Br., Ex. F (showing that Crossroads did not make a sweeping disclaimer of any use of a "network server"; Crossroads distinguished its invention from Oeda, Petal and Spring based on the requirement that the "network server" that provided controlled access to storage was required to translate the</p>		<p>BLOCK PROTOCOL – Intrinsic Evidence 1:54-56 (block protocols are distinct from, for example, file system protocols that handle data as files)</p> <p>BLOCK PROTOCOL – Extrinsic Evidence Def. Ex. 19, Rudolf Graf, <i>Modern Dictionary of Electronics</i> (1999) at 76</p> <p>Def. Ex. 20, <i>Microsoft Computer Dictionary</i> (5th ed. 2002) at 65 ("block device")</p> <p>Berg. Decl. ¶ 49-52</p>

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		<p>high level file system command into low level commands in order to send the NLLBP to the storage device, not the use of Ethernet networks, Ethernet or TCP/IP).</p> <p>Col. 2, ll. 17-20; Col. 5, ll. 19-22, 50-57, 60-63; Col. 6, ll. 32-37; '147 Patent, Claim 1, Col. 9, ll. 28-32 (disclosing and claiming embodiments using Fibre Channel; the inclusion of "without involving . . . network protocols" according to Defendants' expert would prohibit the use of Fibre Channel despite the fact that these are express embodiments).</p> <p>Col. 5, ll. 53-56 (Fibre Channel is a protocol used for communications over "Fibre Channel based networks").</p> <p>Col. 1, ll. 42-53; Col. 3, ll. 16-24; Col. 5, ll. 1-5 (specification notes that NLLBPs do not involve overhead of high level</p>		

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		<p>network protocols or file systems).</p> <p>Col. 6, ll. 31-41, 46-56 (specification has two distinct embodiments in which the "devices" making storage requests are servers).</p> <p>Extrinsic:</p> <p>March 7, 2011 Supp. Decl. of John Levy, Ph.D., ¶2; March 7, 2011 Decl. of Brian Berg ¶42 (experts agree that "NLLBP" is not a term of art).</p> <p>Hr'g Tr. at 121:8-16, March 8, 2011 (parties agree that "NLLBP" should be construed as a single term, consistent with use in specification)</p> <p>March 7, 2011 Supp. Decl. of John Levy, Ph.D., ¶13 (Ethernet and TCP/IP protocols are concerned only with delivery of messages).</p> <p>March 7, 2011 Decl. of Brian Berg ¶48 (a SCSI</p>			

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		command would be a low level command). March 7, 2011 Decl. of Brian Berg, ¶37 (states that "low level" means "without involving . . . file system protocols."). April 28, 2011 2d Supp. Decl. of John Levy, Ph.D., ¶4 (person of ordinary skill would understand that the specification discloses a server that sends requests for storage access to a storage router using NLLBP). Hr'g Tr. 76:4-10, 82:20-23, March 8, 2011 (in hypothetical network of Graphic 2 of Defendants' Markman Demonstratives (Fore Decl. ISO Pl's Post-Hr'g Cl. Const. Br., Ex. J) the workstation sends high level file systems commands to network server); <i>Id.</i> at 200:2-5, 201:22-24, 202:24-203:3 (Defendants expressly stated that a "device" is a "computer" that is both "reading or			

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		<p>writing data from a storage device" and sending NLLBPs and the only "device" that does so in Graphic 2, shown in Crossroads' Post-Hearing Brief is the "network server").</p> <p>Crossroads' Concise Statement of Infringement, <i>Dot Hill</i> Litigation (Case No. A-03-CV-754 SS), Fore Decl. ISO Pl.'s Post-Hr'g Cl. Const. Br., Ex. H; April 28, 2011 2d Supp. Decl. of John Levy, Ph.D., ¶5 (accused devices in <i>Dot Hill</i> litigation were designed to be used in hypothetical system shown in Graphic 2 of Defendants' Markman Demonstratives (Fore Decl. ISO Pl.'s Post-Hr'g Cl. Const. Br., Ex. J)).</p> <p>Hr'g Tr. at 81:12-15, March 8, 2011 (all parties agree that the Petal, Spring and Oeda references disclose systems with a "server" interposed between</p>		

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		workstations and storage devices); <i>Id.</i> at 88:2-89:16; 93:4-7; 100:16-24 (Defendants agree that the "translation" distinguished by patentees during reexamination was from high level file system commands into NLLBP requests); <i>Id.</i> at 89:11-16 (parties agree that "allowing access . . . using NLLBP" occurs without a translation from a high level file system command to a NLLBP request); <i>Id.</i> at 91:14-16, 92:1-5, 152:4-7 (Defendants concede that the "network protocols" described in the Oeda, Petal and Spring references included file system commands thus, including "without involving . . . network protocols" is superfluous to "without involving a translation from a high level file system command to a native low level block protocol request.")			

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		<p>April 28, 2011 2d Supp. Decl. of John Levy, Ph.D., ¶7 (CIFS, NFS and FTP are network protocols).</p> <p>March 7, 2011 Decl. of Brian Berg, ¶37 (Defendants' expert uses term "network protocol" broadly such that it would include Fibre Channel).</p> <p>April 28, 2011 2d Supp. Decl. of John Levy, Ph.D., ¶6 (under Defendants' construction, a protocol used for communication over "Fibre Channel based networks" would be a network protocol).</p> <p>February 22, 2011 Decl. of John Levy, Ph.D., ¶¶ 31, 33 (NLLBPs do not have the overhead associated with the use of higher level protocols to access storage); <i>Id.</i> ¶ 34 (specification describes network servers communicating with storage using NLLBPs).</p>		

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Claim 2: The storage router of claim 1, wherein the supervisor unit maintains an allocation of subsets of storage space to associated devices connected to the first transport medium, wherein each subset is only accessible by the associated device connected to the first transport medium.	Device: "Computing device that issues storage access requests."	Device: Intrinsic: Claim 1, Col. 9, ll. 27-30 ("devices" refers to the devices that make requests and are allowed access to storage devices). Col. 1, ll. 36-37; Col. 2, ll. 4-5; Col. 4, ll. 55-56; Col. 8, ll. 65-68 (the specification describes the devices that make requests to access the storage devices as "computing devices"). Col. 1, ll. 57-60 ("from the perspective of a workstation, or other computing device, seeking to access such server data, the access is much slower than access to data on a local storage device"). Claim 3, Col. 9, ll. 37-39 (principles of claim differentiation require "devices," as a group,	Device: Computer.	See claim 1, <i>supra</i> . ⁴
				No Construction Necessary.

⁴ For this and other claim terms appearing in multiple claims, the parties have not identified any evidentiary issues that are different between different claims. Therefore, for the sake of brevity and clarity, Defendants avoid repetition of issues addressed in detail previously in this chart.

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		<p>must necessarily be broader than "workstations").</p> <p>Col. 6, ll. 31-41, 46-56 (the specification describes "servers" as a type of computing device that can make storage access requests).</p> <p>Abstract, Col. 1, ll. 21-24, ll. 36-37, ll. 53-56; Col. 2, ll. 4-6; Col. 3, ll. 3-6, 41-43; Col. 4, ll. 38-42, ll. 55-56 Col. 6, ll. 45-55; Col. 8, ll. 65-68 ("devices" is used broadly to refer to various computing devices such as workstations, input/output devices, "initiator" and "target" devices).</p> <p>April 6, 2005 Reply to Office Action at 8, 10, 12, 22, Fore Decl. ISO Crossroads' Post-Hr'g Cl. Const., Ex. E; July 22, 2005 Reply to Office Action at 7-15, 21-23, 27-29, 32, 33, 35-37, 39, Fore Decl. ISO Crossroads' Post-Hr'g Cl. Const. Br., Ex.</p>		

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		<p>F ("Device" is used over ninety times in the reexamination prosecution history to refer to types of devices capable of making requests for storage).</p> <p>Extrinsic:</p> <p>April 28, 2011 2d Supp. Decl. of John Levy, Ph.D., ¶ 4 (one of ordinary skill would understand that in the embodiments at Col. 6, ll. 33-41; 46-56, it is the server that sends requests for storage access to the storage router using NLLBP).</p> <p><u>The McGraw-Hill Illustrated Dictionary of Personal Computers</u> 126 (4th ed. 1995), Fore Decl. ISO Crossroads' Cl. Const. Br., Ex. W (defining device as "a mechanical, electrical or electromechanical contrivance or appliance. Commonly used in reference to peripherals such as printers, CRTS and disk drives").</p>		

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		<p>Hr'g Tr. at 202:24-203:3, 205:4-7, Mar. 8, 2011 (Defendants' counsel agreeing that the defining characteristic of a device is that it is the thing that issues storage requests).</p> <p>May 11, 2011 3d Supp. Decl. of John Levy, Ph.D., ¶3 (a "network server" is a server that can request access to storage).</p> <p>Microsoft Computer Dictionary 430 (3d Ed. 1997), May 11, 2011 3d Supp. Decl. of John Levy, Ph.D., Ex. A (defining "server" as "(1) on a local area network (LAN), a computer running administrative software that controls access to the network and its resources, such as printers and disk drives, and provides resources to computers functioning as workstations on the network").</p>		